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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/497,513	02/04/2000	Yoshitaka Kawanabe	Q057824	7577

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EXAMINER

BOCURE, TESFALDET

ART UNIT PAPER NUMBER

2631

DATE MAILED: 09/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/497,513

Applicant(s)

KAWANABE, YOSHITAKA

Examiner

Tesfaldet Bocure

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-5, 8-10, 12 and 13 is/are allowed.
- 6) ☒ Claim(s) 11 and 14 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ling et al. (US patent number 6,172,970, newly cited).

Ling et al (Ling hereinafter) teaches a diversity receiver (figs 1 and 3) comprising: a plurality of antennas (ANT1 and ANT2) for receiving diversity RF signal; a phase shifter (see phase shifter 0 in figure 1) for shifting the received RF signal; a combiner (see adder) for combining the phase shifted and unshifted signal; and the RF front end for down converting the combined phased shifted RF signal and baseband processing of the down converted signal (see starting col. 4, line 34 through col. 5, line 6) as in claim 1.

Further to claim 14 the system of Ling is used in a portable handset for personal communication and reads on the claimed mobile communication. See col. 1, lines 5-68.

Ling teaches that the received RF signal is phase shifted to minimize interference between the received diversity signals rather than a frequency shifted as in claim 11. However it is well known given the linear inverse relationship between frequency and phase, i.e., $f=1/T$, to design the system of Ling be frequency shifter instead of phase shifter so that to minimize interference between the received diversity signals.

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Therefore, it would have been obvious to one of an ordinary skill in the art to replace the phase shifter of Ling by a frequency shifter at the time the invention was made.

Response to Amendment

Applicant's arguments with respect to claim 11 and 14 have been considered and are moot in view of the new ground of rejection.

Allowable Subject Matter

3. Claims 3-5, 8-10,12 and 13 are allowed.
4. Claim 15 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US patent numbers 6,400,318 and 6,449,649, respectively issued to Kasami et al. and Miyahara and IEEE transaction on Communication to Cox by the title: "Low Complexity Diversity Combining Algorithm and Circuit Architecture for Co-Channel Interference Cancellation and Frequency-Selective Fading Mitigation," disclose a diversity receiver having RF phase shifter and combiner for combining the phase shifted RF signal.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tesfaldet Bocure whose telephone number is (571) 272-

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3015. The examiner can normally be reached on Mon-Thur (7:30a-5:00p) & Mon.-Fri (7:30a-5:00p).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

T.Bocure

Tesfaldet Bocure
Primary Examiner
Art Unit 2631

